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ABSTRACT

PORPE, a comprehensive strategy system utilizing writing, was originally created for students who wanted to know how to study for essay examinations in their college courses. With PORPE, students are involved in (1) predicting potential essay questions to guide subsequent study; (2) organizing key ideas using their own words, structure, and methods; (3) rehearsing the key ideas; (4) practicing the recall of the key ideas in self-assigned writing tasks; and (5) evaluating the completeness, accuracy, and appropriateness of their written text. In order to investigate the effectiveness of PORPE, 65 specially admitted college students enrolled in a developmental studies learning strategy course were randomly assigned to an experimental or control group. The experimental group was guided through the five steps of PORPE, and then, both groups were given two days to study their self-developed training materials and tested afterwards. Results showed that the students trained in PORPE scored significantly better on their initial and even delayed essay and multiple choice exams. (Two sets of tables, one figure, and 14 references are attached.) (JK)

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COLLEGE READING AND LEARNING ASSISTANCE
TECHNICAL REPORT No. 87-04

PORPE: A COMPREHENSIVE STUDY STRATEGY UTILIZING SELF-ASSIGNED WRITING

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ABSTRACT

PORPE, a comprehensive strategy system utilizing writing, was originally created for students who wanted to know how to study for essay examinations in their college courses. With PORPE, students are involved in Predicting potential essay questions to guide subsequent study; Organizing key ideas using their own words, structure, and method; Rehearsing the key ideas; Practicing the recall of the key ideas in self-assigned writing tasks that require analytical thinking; and Evaluating the completeness, accuracy, and appropriateness of their written text. Interactions with students over a four year period and an experimental study have both validated PORPE to be an effective learning strategy for students preparing for either essay or objective exams.

PORPE: A Comprehensive Study Strategy Utilizing Self-Assigned Writing

Over the years college students and faculty have both come to accept the fact that examinations are a necessary evil for assessing student mastery of course content. While assessment can take any of several forms, most students will generally state, in most unequivocal terms, that they prefer the objective exam over the dreaded essay. Fortunately for them, the objective test has typically dominated the college testing arena; however, the growing interest in the writing across-the-curriculum movement has recently led to a resurgence in use of the essay test by college professors. Consequently, we have encountered a burgeoning number of students expressing anxiety over the prospects of taking their first college level essay exam. Our interactions with these students seem to suggest that they now perceive the growing importance of essay exams and that they face a unique set of problems in their study. In response to our students' anxieties and their practical concerns, as well as in response to the dismay of many professors over their students' products on these essay measures, we came to the conclusion that we needed to create a systematic and comprehensive means of study for the essay exam which could then be taught to students in our learning strategy courses. Therefore, using self-introspections of successful learners, the current theory, and the appropriate research, we developed a comprehensive strategy entitled PORPE. Hence, it is the purpose of this article to present and describe the steps and processes involved in PORPE. Second, we will

briefly report the findings of our initial research that trained high risk college students to employ PORPE while studying material regularly presented in freshman level psychology classes.

The Steps of PORPE

When students employ the steps of PORPE while they read and study, they behave like Baker and Brown's "effective readers" who are encoding information and regulating their own learning. The first three steps of PORPE-- Predict, Organize, and Rehearse-- involve students in the encoding processes of selection, acquisition, construction, and integration. The last two steps, Practice and Evaluate, involve students in the metacognitive processes used to regulate and oversee learning. The specific theoretical constructs and research basis for each step of PORPE are summarized in Figure 1.

Predict

After students have finished reading an assignment, they use PORPE's first step, Predict, to generate potential questions that would make good essays. In this critical step, students clarify the purposes of their subsequent study. By posing several general or higher order essay questions that ask for a synthesis and discussion, a comparison and contrast, or an evaluation of the key concepts from a chapter, students are forced to process the text in a more active or elaborative manner as they read and study (Reder, 1980).

To insure that students can complete this critical step, college reading specialists should incorporate several teaching techniques into their classroom routine. For example, the instructors can introduce the language used for writing essay examinations by providing the students with a glossary of commonly used essay question words such as explain, discuss, criticize, compare and contrast. Once students understand the meaning of the commonly used essay word starters, teachers can model the procedures used for predicting essay questions from a specific chapter. After several sessions of modeling, instructors can then provide students potential question stems and ask them to finish writing the questions for a specified topic. This sequence of instruction should insure that students are ready for the second step of PORPE, Organize.

Organize

Organize involves students in constructing the information that will answer the self-predicted essay questions. Construction refers to the building of "internal connections" among ideas so that information becomes reorganized into a coherent structure (Cook & Mayer, 1983). For each predicted essay question, students map or outline answers in their own words. College reading specialists can begin the training of this step by sharing their own maps, charts, or outlines that answer a predicted essay question. Students can then work in pairs to brainstorm their own organizational structure for another predicted essay question. Representatives from each pair should then share their organizational structure and rationale on the chalkboard. The

final step would be for the students to develop their own map or outline for a different essay question and to receive written feedback from the instructor. Instructors will then need to check the students' work for accuracy, completeness, organization, and use of appropriate examples.

Rehearse

The third step of PORPE, Rehearse, engages students in the active self-recitation and self-testing of the key ideas from their maps or outlines. In a sense, students are verbally answering their self-predicted essay questions so that the key ideas can become transferred to working memory. At this point instructors should once again stress the difference between the processes of recall and recognition so that students will accept and internalize the need for a Rehearsal step in their study. In addition, instructors should model active self-testing and contrast that with the more prevalent student method of rehearsal--"looking at the information."

Practice

The fourth step, Practice, is the validation step of learning because students must write from recall the answers to their self-predicted essay questions in some public and observable form. They are involved in what Vygotsky (1962) aptly calls the "deliberate structuring of the web of meaning" (p. 10). This act of writing leads students from passive and literal-minded responses to higher levels of thinking and reasoning such as analysis and synthesis (Langer, 1986).

Instructors can facilitate this Practice step by discussing the procedures for writing an effective essay answer. For example, students should be taught to read each question carefully before they begin to write, underlining key words. Next, they should be encouraged to sketch their outline or map in the margin of their test paper before they begin writing. Once they begin answering the question, they should make sure that their opening sentence rephrases the essay question and/or takes a position. Finally, students should reread the essay question to insure that they have directly answered the given question.

Evaluate

The final step of PORPE requires students to Evaluate the quality of their practice answers. The objective of this step is for students to see their writing as a unique form of feedback and reinforcement that monitors and evaluates their level of understanding and learning. To facilitate this process students are given a checklist which requires them to read and evaluate their text as would a professor. The checklist asks students to determine the following: (1) Did I directly answer the question? (2) Did I have an introductory and/or position statement? (3) Did my answer organize the major points so that these were obvious to the reader? (4) Did I include relevant details and examples? (5) Did I provide transitions for the reader? (6) Did my essay demonstrate a thorough knowledge of the content, and will it make sense to a professor?

Since this step is a critical self-regulatory process, college reading professionals will need to arrange sessions where

students read, discuss, and evaluate the merits of various essay answers. Once students become more accustomed to evaluating answers objectively with a checklist, they can work in pairs to evaluate each other's essays and independently evaluate their own answers.

An Initial Validation of PORPE

We had two reasons for wanting to empirically validate PORPE. Most importantly, we had informally noticed how PORPE had improved our students' abilities to write effective and accurate essay answers to college level essay examinations. Hence, we wanted to test this comprehensive strategy in a more controlled environment. Second, informal feedback from our students who had mastered PORPE led us to believe that this comprehensive stategy also prepared them for multiple choice and true-false examinations. We were particularly intrigued with these testimonials since many of the research studies in which students had been trained to use other writing processes such as summarization or the analytical essay had not been able to demonstrate a superior performance on objective exams (King, Biggs, & Lipsky, 1984; Newell, 1984; Pio & Andre, 1977). Hence, we had a second reason for this initial study--to determine whether or not the processes involved in PORPE could impact student learning, as measured by recognition formats on content area examinations.

Our subjects for the study were 65 specially admitted students enrolled in a developmental studies learning strategy

course. Two classes were randomly selected to receive the PORPE treatment and two classes were randomly selected to receive the control treatment. The mean SAT-V scores for the PORPE group was 327 points and 340 points for the control group. Males comprised 42 percent of our sample and caucasians comprised 50 percent. No significant differences were found in the SAT-V scores across the four learning strategies classes, $F(3,64)= 1.62$, $p=.195$.

For three weeks the study involved five different phases which were repeated each week. All the instruction, assignments, and tests were integrated into the normal classroom routine. In phase one the students in the experimental and control groups were assigned to read three different psychology excerpts, the third one being the criterion passage for data collection. All three excerpts were written on the college level and were between 1,658 and 3,844 words long.

During the second phase, training, one researcher taught the subjects how to apply either PORPE, the experimental treatment, or a question-answer self-recitation format, the control treatment, to each of the excerpts. During the experimental treatment the students were guided through the five steps of PORPE. The question-answer self-recitation treatment required the students to answer researcher-prepared questions in their own words. These questions were written on the left side of the provided handout and students were instructed to write their own answers on the right hand side, thus providing them a self-testing format for their subsequent test preparation. The 22 researcher-prepared questions for the criterion passage

expected students to define, give characteristics, exemplify, provide exp anations, perceive the superstructure of the text, and to apply information to new contexts.

In phase three, independent study, the students were given two days to study their self-developed training materials (the excerpts were taken from them) in preparation for each of the exams. During phase four, testing, for each of the three excerpts the students answered the essay questions and then the multiple choice questions. All three exams were averaged into the students' grades, but only the exam on the final and criterion excerpt was included in the data analyses. The criterion exam, with a reliability coefficient of .79, contained 20 multiple choice questions and 2 essay questions, each worth ten points, making a total of 40 points. A delayed and unannounced testing, phase five, occurrred exactly two weeks later for the criterion passage.

The multiple choice exam was scored with a key, while the two essays were scored by two independent raters to determine whether or not the students included the relevant information in answering the assigned essay questions. This scoring procedure was meant to correspond to the procedure that a content area teacher generally employs when grading essay exams. In order to operationalize this type of scoring, a dichotomous scale was developed. Using this dichotomous scale or template, the two raters independently scored each essay for the initial and delayed testing situations, crediting each correctly recalled

idea with one point. The interrater reliability for this scoring was .89.

The method of analysis was a factorial design using the SAT-V scores as a covariate variable. The analysis of covariance revealed the following (see Table 1 and 2 for the adjusted means and standard deviations):

1) A significant treatment effect for the initial objective test, $F(1,60)= 13.69$, $p= .001$, with an effect size of .92

2) A significant treatment effect for the delayed objective test, $F(1,60)= 11.49$, $p= .001$, with an effect size of .847

3) A significant treatment effect for the initial essay test scored dichotomously, $F(1,60)= 167.82$, $p=.0001$, with an effect size of 3.241

4) A significant treatment effect for the delayed essay test scored dichotomously, $F(1,60)= 19.8117$, $p=.0001$, with an effect size of 1.113

Thus, the students trained in PORPE scored significantly better on their essays, whether they were written two days later or two weeks later. More importantly, the students who used PORPE as their study strategy scored significantly better on the initial and delayed multiple choice exams. Thus, our intuitions and our students' hunches about the potency and durability of PORPE proved to be accurate in this particular experimental situation.

PORPE is a comprehensive package of encoding and self-regulating processes which actively involves students in their own learning. Our classroom instruction, interactions with

students, and this initial research study have strongly suggested that PORPE can significantly impact student learning, whether it be assessed by essay or objective test formats. Obviously, more research must be conducted across other content areas. Most importantly, PORPE should be considered as <u>one</u> possible learning strategy, <u>not</u> a generic approach or panacea for all tasks, texts, and students.

Table 1

Adjusted Group Means and Standard Deviations for the Multiple Choice Test (Initial and Delayed)

Group	M	SD
PORPE - Group 1		
initial testing[a]	15.0	2.20
delayed testing[a]	14.79	2.11
PORPE - Group 2		
initial testing[a]	17.12	2.21
delayed testing[a]	14.49	2.01
Question-Answer - Group 1		
initial testing[a]	12.87	3.46
delayed testing[a]	11.19	2.24
Question-Answer - Group 2		
initial testing[a]	13.59	2.37
delayed testing[a]	11.50	2.31

[a]Maximum possible score = 20

Table 2

Adjusted Group Means and Standard Deviations for the Dichotomously Scored Essay Test (Initial and Delayed)

Group	M	SD
PORPE - Group 1		
initial testing[a]	16.82	2.7
delayed testing[a]	5.03	1.1
PORPE - Group 2		
initial testing[a]	14.6	2.61
delayed testing[a]	4.36	1.31
Question-Answer - Group 1		
initial testing[a]	5.2	3.76
delayed testing[a]	1.94	.56
Question-Answer - Group 2		
initial testing[a]	5.53	3.39
delayed testing[a]	1.60	.63

[a]Maximum possible score = 20

FIGURE 1. Steps, theoretical constructs, and research basis for PORPE

TACTICS	TACTICAL ACTION	THEORETICAL CONSTRUCT	RESEARCH BASIS
PREDICT	Predict possible essay questions on the material to clarify purposes for subsequent study, identify critical aspects of text, and focus on major content.	Encoding process of selection Processing text in an elaborative manner Planning aspect of writing	Cook & Mayer (1983) Reder (1980), Rickards & Divesta (1974) Tierney & Pearson (1983)
ORGANIZE	Organize key ideas pertinent to the self-predicted essay question using one's own words, structure, and methods. Summarize and synthesize ideas via maps, charts, outlines.	Encoding processes of selection, acquisition, and construction Planning and organizing ideas for later writing	Cook & Mayer (1983), Weinstein & Mayer (1986) Tierney & Pearson (1983)
REHEARSE	Rehearse the organizational structure and key ideas via active self-recitation.	Monitoring, self-questioning, and taking corrective action Rehearsing promotes learning	Baker & Brown (1984) Anderson (1978), Gagne (1978), Smith (1967)
PRACTICE	Practice by writing an essay answer to the self-predicted question from recall.	Encoding processes of integration Writing facilitates higher levels of thinking Writing requires a necessary form to demonstrate understanding Writing is a generative process	Cook & Mayer (1983) Emig (1977), Langer (1986), Newell (1984) Coe (1987), Richards (1936) Berthoff (1981), Stotsky (1986)
EVALUATE	Evaluate with a checklist the completeness, accuracy, and appropriateness of the essay. A positive evaluation indicates a readiness for the test. A negative evaluation indicates a need to loop back into the previous steps of PORPE.	Self-regulating process of monitoring, checking, and evaluating Writing as feedback and reinforcement to the learner	Baker & Brown (1984) Emig (1977), Langer (1986)

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